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SPRING PROGRAMME, 1951.

LECTURES AT CAXTON HALL.

At 7.30 p.m.

Admission free to Members. Guests 2/- each.

Friday, 23rd February.
Mr. H. N. BICKLE on "Atlantis and Hoerbiger as I see them."

Friday, 30th March.
Mr. EGERTON SYKES on "Titicaca and its Mysteries."

Friday, 27th April.—Details to be announced.

Friday, 25th May.—Details to be announced.

OTHER LECTURES BY EGERTON SYKES.

Friday, 9th February.
At Mill Hill Historical Society.

Friday, 2nd March.
At Dormy House, Camberley.

EXCURSIONS

Saturday, 17th March.
Half Day Excursion to archaeological sites in the City of London. Price 3/6

A Sunday in April.
Return visit to Kits Coty District.

A Sunday in May.
Avebury, Amesbury, and Stonehenge.

All communications should be addressed to the Honorary Secretary, **9, Markham Square, S.W.3.** Tel. Ken 5381.

TO AND FRO BEFORE COLUMBUS.

By K. B. JAMIESON.

(Abbreviations: Cent(s)., century,-ies; I., Is., Island(s); lit., literally. N.Z., New Zealand. Ke., Kechua (Inca); Ay., Aymara (L. Titicaca). My., Malay. AN., Austronesian; IN., Indonesian; Ja., Javan; Mg., Malagasy. Fi., Fijian. PN., Polynesian; Sa., Samoan; Ma., Maori; Tah., Tahitian; Ha., Hawaiian. Ch., Chinese. Kh., Khasi (Assam). Ml., Mailu (Papua). Mo., Mono (Solomon Is.). MP., Malayo-Polynesian (Austronesian). Ef., Efate (New Hebrides). Pe., Peruvian. Tia., Tiahuanaku).

PART II. From China to Peru.

Listeners to the B.B.C. 3rd Progr. recently will have heard ("The Enchanted Islands," 6/9/50) about the Tah. tradition of a strange submarine land called Vairi (cf. Buru Waili, Serang Waeli, water). In My. legend, too, we hear of a submerged continent at the "heart of the seas," in the centre of the Tasek Pauh Janggi, the great ocean. All that remains of this eastern Atlantis is a "sunken bank" (Tebing Runtoh) on which grows the tree Pauh Zanggi, identified with the double coconut, Cocos Maldiva: Wilkinson, My-Eng. Dict., 1946. It has been suggested that Madagascar is the remnant of a larger land mass between India and E. Africa: Bouquet, Hinduism, 1948, p. 16n. Certainly the configuration of the region between the Indian and Pacific Oceans must once have been very different from what it is now; in Indonesia, the fauna indicates that the islands W. of Wallace's Line were linked with Asia during the ice ages, those E. of it to a greater Australia. Long before historic times, however, due to a rise in ocean levels consequent on the retreat of the Polar ice cap, the appearance of these islands had come to be much as we see it on our maps; though even since the first centuries A.D. the E. coast of Sumatra may have altered somewhat (1), and other minor changes have no doubt occurred. Into this region of large and small islands, of seas, passages and straits, came the Polynesians from Sumatra.

It was probably pressure from their more Mongoloid kinsmen, the Malays, who had come down from Yunnan with them a millennium or two previously, that drove the Polynesians out to the archipelago to settle perhaps for 3 or 4 centuries in Celebes. In Indonesia, besides canoes balanced by double or single outriggers (My. Katir: cf. Ef. Kate, pole on outside of superstructure on side opposite to the Sama-float), which were sometimes mere logs of light wood (My. Gandong: cf. PN. Kiato, booms), the Polynesians developed large, comfortable boats for travel: Lips, Origin of Things, 1949; Ef. Borau, PN. Folau, Felau, voyage, cf. Mo. Lau, go in canoe, Old Alu Ka-halau, log raft coming to point at each end, My. Prahu. P-rau, a **proa** (long, narrow sailing canoe), ber-Prau, to travel by boat, cf. also Old My. Pilau, a type of ship, Ml. Orou, double

sailing canoe, and New Hebrides n-dRav, r-Arua, Lo, Laou, boat. The Fi. double canoe (Waga), with its larger and smaller constituents (Kata and Thama), is of IN. origin, cf. Buru Waga, Old Ja. Wangkang, sailing ship. Large boats carried sail (My. Layar, Ml. Laea, Mg. and Ef. Lai, Sa. La, Ma. Ra.). Later the Polynesians found in Savaii, their mother island in Samoa, excellent hardwood trees for building large canoes (Daniel, Is. of Pacific, 1943) to carry them to Tahiti, Rarotonga, N.Z., etc.

PN. culture in Sumatra was like that of neighbouring IN. and Proto-My. tribes (Winstedt., Malaya and its Hist., c. 1949; Crawfurd, 1820, v. Schrader and Jevons, Preh. Antt., 1890, p. 9 n.). Villagers indulged in head-hunting, raised megaliths, learned something of the stars (MP. Bituy; Ke. Ckoillur), and counted as far as 1,000 (My. Ribu, Mg. Rivo, cf. Fi. Levu "great, in great numbers"; PN. Mano, Ef. Bon, Manu, cf. My. and Ja. Banyak, Banak "many"; Ke. Huaranka). As men of the New Stone Age, they were familiar with pottery. Clothes were made from fibrous bark (My. T-rap, species of bread-fruit tree, bark of which Sakais use as cloth; Ponape Kun-ne-Kai, bark—My. Kulit Kayu—or clothing; PN. Tapa, Sa. Siapo, Fi. Masi, Ef. Fona, Tofe, cloth manufactured from bark of paper-mulberry—Ml. Damoa, Lamoa—a tree the Maori failed to grow in N.Z. where the native flax, Phormium tenax, replaced it (2); yet the Maori tell how the deified Tawhaki covered his dazzling body with "a garment of dried bark" that men might look on him: (Clark, Ma. Tales and Legds., 1896); gold ornaments may have been worn, and the hair was combed and dressed, combs (My. Sisir, Sikat; Sa. Selu, Fi. and Ef. Seru, Torres Straits Is. Seker; Ef. Sike, to comb) being doubtless worn in it as among Melanesians, Micronesians, ancient Japanese, etc. Houses (Ef. s-Uma, Mo. n-Uma. Motu r-Uma, IN. r-Umah; Ha. Hale, Marquesan Hae, Tah. Fare, Ma. Whare, Sa. Fale, Fi. Vale, Yap-Palau Bai, cf. My. Balai "hall, men's clubhouse"; Ke. Huasi) were raised on stilts, as to-day in Borneo, the Philippines, etc., and floored with bamboo (My. Aur, Mo. Aulu, Banks Is. Au; with Tongan Kofe, Sa. Ofe. Ha. and Tah. Ohe "bamboo." cf. ALIBI Ohe "to peel," Ml. L-ove "wood shavings," Ef. L-obu "bamboo plant, water-vessel or knife," Mo. Efu, Ehu, Old Alu Kehu "bamboo playing- pipes," Ml. Kapa-kapa "bamboo," Kobubu "b. flute," Bau-bau "b. smoking-pipe," Bobomu "short length of b.," My. Buloh "bamboo," S-ebong "division of b.," R-ebong "b. shoot," G'd-ebong "b. box," T-abong "b. water-vessel," also Bachok, Kanchong, etc.).

Besides game, hunted with bow (PN. Pana, Mo. Fana, Ml. Ana, My. Panah, lit. "tree—Ay. Khoka—or wood," cf. Ml. Gaubidiari or Kau-pisiri, bow, lit. "wood tied together"; New Hebrides Aso, Asu, Usu, Vus, IN. Husu, Busu, Busur, Busar, Melanesian Boa, Boala), etc., meat was available in the

shape of domestic pigs (Kh. s-Niang, cf. My. babi Nangui "wild-pig"); according to Wright (Cassell's Conc. Nat. Hist.), the Ch. hog, or a breed "closely related to it, extends from China throughout the various groups of islands in the S. Pacific." Perhaps ducks and fowl were kept. Buffaloes and possibly cattle had been domesticated for purposes of draught and burden. In addition to taro (the staple in Hawaii, etc., and surviving in Malaya, Sunda Is., S.E. Borneo, Celebes, and and Proto-My. tribes (Winstedt, Malaya and its Hist., c. 1949; among the Khasis, who call it Shirieu) and yams, the gardens produced coconuts, bananas, gourds (MP. T-ibun; Ke. Puru, cf. Guamaka Buru, Buro), and sugar-cane (Ef. Porai, Ml. Po, Kate Bo, Mo. Tofu, My. Tebu); in the fields millet (Kh. K-rai, Lynngam dialect Jrai, My. J-lai; for the interchange of K, J, cf. Banks Is. Kalato, My. J-latang, nettle, Kh. Jain, My. Kain, cloth, and Old Alu Kapa-kapa, Kh. Japieh, kinds of frog: with this last we may perhaps compare Lat. Bufo, toad, if an Oscan loan-word and for Indo-Eur. Gwobh-) and rice were grown. The latter seems to have reached Malaya and Cambodia from India (My. Padi, **paddy**, cf. Sanskrit Bhakta, Hind. and Bengali Bhat, boiled rice; Mon Sro, Khmer Srur, cf. Tamil Shoru, Malayalam Cora, boiled rice, Hind. Chura, Churwa, flattened rice), Upper Burma and Assam from the Thai or Shan—"Siam"—cultivators (Kh. Khau, Burmese San, cf. Siam. Khau san, also Palaung Re-Kao, rice, My. Ra-Jau, aftermath of rice-fields); and wet rice, along with fowl and buffalo, came from about the Bay of Bengal to China by 1000 B.C. (3), though it was not yet known to the Indo-Aryans whose later name for it —Sanskrit Vrihi, Pushtu Wrijzey, cf. "rice"—seems borrowed from the Dravidians (Tamil Arisi, Malayalam Ari).

On the other hand the Kumara (sweet potato), a staple crop of the Maori in N.Z., was unknown to the proto-PN. people in Sumatra and Celebes. Enquiry shows me I was wrong in suggesting an Indo-Ch. origin for this tuber. There is, indeed, a deceptive continuity about its present distribution from China, Formosa and Siam through Malaya (where it is called Ubi Kledek or K-tela) and Borneo to Papua, where it has become second in importance only to sago (Lett, Papua, 1944); the New Hebrides, to which Dr. Gunn (Gospel in Futuna, 1913) evidently thought it indigenous; Fiji, where it has its PN. name of Kumala (4); and Tonga, where Capt. Erskine noticed it in 1849;—but its spread to all these places seems due to European agency. It was the Spaniards, probably, who brought the sweet potato to the Philippines, whence it was introduced to China as late as 1590 (3), i.e. about the time of general introduction of the common potato to England; in France the batata is first mentioned in 1519: Dauzat, Dict. Etym., 1938-46, s.v. patate. Only in quite recent years has the sweet potato come to Micronesia from Japan (Price, Jap. Is. of Myst., 1944-5, p. 209). Heyerdahl correctly believes (5) that the Kumara was confined to E. Polynesia (N.Z., Hawaii, Easter I., etc.), and

came thither from S. America; but its original absence from the western islands argues against its being brought as early as A.D. 500. If Kon-Tiki brought it, why was not it taken to all the PN. islands by the "race" he is supposed to have "founded"? Darwin, in 1834-35, found it cultivated in Argentina, Galapagos Is., and Tahiti (Voyage of "Beagle," 1839-1906). Tahiti? Is not this the obvious centre of distribution to N.Z., etc.? Unless, then, we can believe that the seeds were carried safely for thousands of miles by the Pe. (Humboldt's) and S. Equatorial Currents, to be picked up on the reefs, we must conclude that one of the "Ma." expeditions from the Society Is. about the 11th or 12th cent. not only reached S. America but returned home, with the Kumara as its prize and memorial. This would sufficiently account for the facts adduced by Heyerdahl.

Fishing was and is an important means of livelihood to the MP. peoples. Of the methods used, the oldest seems to be spearing (My. Tikam, cf. PN. Sia, Sika "fish-spear," and note Ml. Udi, My. Piarit, Sligi, id.), but hook and line fishing—PN. Makau, Matau, My. Kail, Mengail, note also Mo. Fula-fula—is scarcely less old, particularly if, as seems possible, the PN. word for hook (Au, Kau, Ef. ta-Gau, Ml. Gau) is cognate with Ch. Kou. Traps, too, may have been used for catching fish even in "Austric" times (cf. Kh. Khowar, Ef. Kaua), and bamboo scoops used by the Khasis recall the hand scoop-net of PN. Tikopia, the Kuti (Firth, in Essays Presented to Seligman, 1934, p. 68), and of Papua (Ml. Odi for Koti). Cord nets (PN. Ku-, U-penga, Upea, Kubega; Mo. Sorau, Gomera; Ml. Orai, Gauma; My. Utas Rantu, etc.) were unknown in MP. Indonesia: Winstedt, op. cit.; but the My. Lengkong, a long fence-trap in which fish are caught at low tide, resembles (6) a seine-net (Ml. and Koita Reke; Tah. Upea Toro).

Just as the IN. Land Dyaks, or some of them, may be supposed to have come to Borneo from Annam VIA Malaya and Java—cf. "Harv. Fest. of L.D." (7), n.4.—so the Polynesians came down the E. coast of Indo-China to Malaya before entering the IN. area. Their migration must have been closely connected with those of the Malays and megalith-builders, about 2000 B.C., and it may be assumed they were still living in S. China in the first half of the 3rd millennium. Now it was precisely at this time that a number of local cultures were developing on Ch. soil: Turkish and Mongol in the N., Tibeto-Burmese in the W., Yao (an early MP. culture) and Thai (proto- Siamese) in the S. The MP. peoples adopted the much older "rectangular axe" culture of N.W. China (where cattle were bred and millet was grown), and carried it to Japan; they also, under Thai influence, made considerable progress in agriculture. From the fusion of the valley (Thai) and mountain (Yao) techniques arose the MP. culture called Yue (Yueh), which was borne through Indonesia by the above-mentioned migrations. At the same period the Austro-Asiatic peoples of

the Liao culture in S.W. China continued to live as primitive hunting tribes: Eberhard, Hist. of China, 1950.

China is thought to be the oldest centre of the far-flung "cylindrical hoe" culture, characterised by semi-nomadic cultivators of garden plots who often, in addition, keep pigs: Lips, op. cit. By 4,000 B.C. men were using hoes with stone blades (3), and this early neolithic culture reached both Austric and Thai-Ch. peoples. In archaic Ch., a near congener of Thai speech (both belong to the Tibeto-Ch. family and some words—e.g. Sam 3, Si 4, Pat 8, Yi 2, Suk "ripe"—are still common to Siamese and Cantonese), the word for hoe appears to have been K'IUT (modern Ch. Ch'u), cf. My. Kiut and the Kh. iron hoe mo-Khiu; by regular PN. curtailment of the diphthong after K and suppression of final T, the Maori arrive at the form KO, their name for the primitive wooden hoe with which they broke up the soil (8). Thus we find in N.Z. two elements of agriculture from opposite ends of the Pacific—the Ko, originating in China, and the Kumara from S. America. Like that of the MP. peoples, the earliest Ch. agriculture was based on Millet (Shu) and the Pig (Chu): Curwen, Pl. and Past., 1956, p. 39; its development is traditionally attributed to Shen-Nung (about 2300 B.C.), the ox-headed culture-hero who taught the use of the plough: Tsui Chi, Short Hist. of Ch. Civ., 1942-7.

In the mountainous regions and on the coasts of S. and E. China, there long survived a great number of independent Yao and Yue tribes, of whom the latter appear to have been closely related to the Chams of Indo-China. During Middle Chou (about 700 B.C.), we hear of a feudal state of Yue S. of the lower Yangtse, and although this state was absorbed by the Yangtse Valley power Ch'u in 334 B.C., we meet it again in Ch. history as late as the 10th cent. A.D. Yue tribes occupied all the coastal region to the S. as far as Tongking; around Canton an independent realm called Nan (S.) Yue or Kiao-Chi. emerged, the Ch. ruler of which accepted the first Han Emperor as overlord in 196 B.C. In 111 B.C. Nan Yue had to be recovered by China. In A.D. 222-6 it submitted to the State of Wu (capital, Nanking), and was divided into 2 provinces: (i) Kuang-Chou, i.e. Canton; (ii) Kiao- (or Chiao-) Chou, i.e. Tongking, where the kingdom of Chiao-Chih (or -Che) appears in the 7th cent. It is this Chiao kingdom that Marco Polo describes, under the name of Caugigu or Kauziga (Kiao-Chi Kuo), as an inland region of Tongking where, like many Polynesians, the people were tattooed: "Both men and women have their bodies punctured all over, in figures of beasts and birds." Marco also mentions tattooing in W. Yunnan, where IN. affinities are still traceable among such tribes as the Li-su (Diringer, The Alphabet, 1948-9), and describes the MP. appearance of the more easterly To-lo-Man hillmen, "tall and good looking: their complexions inclining rather to brown than fair." N. Annam—Marco's Aniu, i.e. An-Yue?—was called Ta (Great) Yue in the

12th cent. There may be a Yue element in the Annamese people, connected perhaps with the spread of "Dongsonian" Bronze Age culture through E. Indo-China several cents. B.C. (Brodrick, Beyond Burma Rd., 1944): Cham and S. Yue miners, it is thought, were first to work the gold and tin of Malaya: Winstedt, op. cit.

Looking to the overwhelming evidence for the presence in S. China, even later than Han times, of kinsmen of the Polynesians whom the Chinese included under the term Man-Ji ("Sons of Barbarians"), it is difficult to take Heyerdahl's theory seriously. There is, however, a grain of truth in it, since a few of the Polynesians who reached S. America may have returned to Tahiti; and this is more than can be said for the old speculations about the Ch. origin of Pe. civilisation, which were built on nothing more substantial than a few cultural similarities (divine ruler performing annual ploughing ceremony; determination of festivals by the solstices and equinoxes; knotted records—Ch. Ho-tu and Lo-shu, Pe. Kipu or Quipu) not confined to the two countries. One writer, in 1827, even declared it probable that the legendary first Inca, Manko Ckapak (supposed to have reigned c. 1066-1107), was a son of Kubilai Khan (1216-94, Emperor 1260)—evidently the third son, Mangkola or Mangalu, whom his father appointed governor of Shensi, Szechwan and Tibet, but not, as far as we know, of Peru! To-day we could not agree more with Prescott that "the architectural monuments of the (Pe.) aborigines . . . have furnished few materials for a bridge of communication" between the Old and New Worlds.

Until this century, little was known of the pre-Inca peoples of Peru apart from some traditions attributing megalithic remains to a coastal race of giants, destroyed for their unnatural practices, and about a nation of pygmies 3 feet tall; but it was recognised that Inca civilisation owed much to the Piuras, a group of tribes including the Kollas (Aymaras) near L. Titicaca (9). The Piura civilisation, or Tia. culture of modern Americanists, arose about the beginning of our era, when its people doubtless already spoke a form of the Ay. tongue. Heyerdahl believes it cradled Kon-Tiki and the Polynesians. Tia. itself, "bleak and solitary, spells the message of a nation struggling out from savagery." (10) The hunters have become agriculturists, and in the 6th cent. their culture spreads out across the plateau, dominating it for 300 years (11) and culminating about A.D. 900 (12). Then sudden disaster falls, and silence reigns in the "seat of the guanaco." We can only guess at the cause; perhaps it was the Ke. invasion of the Titicaca region under a chief Kari, which Heyerdahl describes, although he antedates it to the 5th cent. and arbitrarily associates it with the alleged flight of Kon-Tiki. At any rate, the Kechua were established on the plateau not long afterwards: about the year 1107 one of their chieftains, the licentious Sinchi

Rokca, laid the foundation of the Inca Empire. At this time, also, a form of the Tia. culture seems to have spread to the coast, and the centuries-old Chimu and Nazca civilisations in other coastal regions revived (11). But older than these, older even than Tia. perhaps, was the culture of Chavin in the highland zone far to the N. of Lima.

Although Chavin has been thought to date from as early as 1000 B.C. and to have extended its influence as far N. as Colombia (13), it has no obvious links with the Maya civilisation of Central America. The stepped pyramid-temple, for instance, does not occur here or at Tia., but only somewhat later at Pachakamak, Moche, etc. (Krickeberg, Introd. to "Anc. Amer.," 1950); Mr. C. A. Burland, pointing this out in a recent article (14), refers also to the absence of this ziggurat-form in Polynesia. Indeed, the pyramids of the Tah. Marae resemble those of the Fi. Nanga enclosures (Rivers, Psych. and Ethn., 1926, p. 234) rather than anything in Peru. In the great fortress-temple of Chavin, "somewhat pyramidal in form" (Dr. Renwick), stands the serpent-adorned image of the jaguar-god, supreme deity of the prehistoric Peruvians and associated with the fertility of the soil. By the time of Christ Chavin culture had reached the coast, bringing pottery and maize to the more backward Guanyape people, bringing also the cult of its own deity. In the Muchika civilisation (A.D. 1000) the god, apparently named "Ai apaec," is represented with a jaguar's head ending in that of a serpent (Strong, Finding Tomb of Warrior-God, Nat. Geog. Mag., 4/47). The Incas identified him with their hero-god Vira-Kocha, "Foam of the Water," whose home was L. Titicaca.

Vira-Kocha in turn was identified with Kon-Tiki (Con-Ticci) or Illa-Tiki (Illatici), whom Heyerdahl, on what grounds is not clear, describes as the bearded priest-king of a race of "white" men. True, the image of Vira-Kocha is said to have been bearded, with a puma or jaguar (?) for companion (Tschiffely, Coricancha, 1943, p. 104n.); but the beard was of water-rushes symbolising his character as a god of growth (15), which is further emphasised by his association with the serpent, a creature that "attains phallic associations." (9) At Tia., his sculptured figure appears between rows of winged warriors and "Condors" showing, PACE Heyerdahl, how immensely the artistic conventions of Peru differ from those of Polynesia. The head of the Tia. figure is surrounded by "rays" said to resemble serpents. But the names Kon-Tiki (lit. Thunder-Vase) and Illa-Tiki (Light-Vase) do not seem applicable to this Ay. figure at all. They belong to the distant Lima region, beyond Nazca and Ica. There the thunder-god Kon-Kon, to all appearance identical with Kon-Tiki, was worshipped by the side of his son (or brother) Illa-Tiki, whom the Incas called Pacha-Kamak; cf. Spence, Dict. of Myth., 1910-30. Only under the influence of late priestly speculation were Kon, Vira-Kocha and Pacha-Kamak combined into a single deity. Vira-Kocha in his Tia.

form, however, seems genuinely equivalent to the Chavin jaguar-god and "Ai apaec" of the N. coast. His wife in Inca times was the sea-goddess Mama-Kocha, whom Heyerdahl would identify with the Ma. female spirit Pani as wife of Tiki (it was this Pani "who gave birth to the Kumara in water"—Elsdon Best). But this equation, too, cannot but give rise to mythological confusion, this time on the PN. side, for in some of the eastern islands it is the goddess Hina (Moonlight; cf. My. Sinar, ray of light) who is married to Tiki or Tii, "the first man." In Tahiti, however, Hina is the wife of Taaroa, the Creator. From a philological point of view, it is as inadmissible to equate PN. Tiki with Pe. Kon-Tiki as it would be to declare that the Hebrew Adam was really a Scotsman named MacAdam.

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PASSIM: As in Part I. Also—
Wilkinson, Schrader, Eberhard, Tsui Chi (opp. citt.), K. Haddon (C. Crs. fr. M.Lds.), Frobenius (Ch-hood of Man), Skeat (Conc. Etym. Dict.), Marlborough's M-yalam S-T., Rawlinson (India), P. Sykes (Q. for Cathay). M. Polo (Travels), Prescott (Conq. of Peru).

NOTE.—I would ask readers to correct their copies of Part I thus: Vol. 3, p. 35, line 2, after "10" read "(Khasi shi-Pheu, shi-Pho;" etc. p. 38, l. 2, the My. name of the bottle-gourd (or green pumpkin. as it is called in India). read "Labu Jantong"; l. 17, for "Vitio" read "Vitiu."

THE ISLAND OF THE SERPENT.

By D. R. BENTHAM.

Many years ago the late Dr. Wallis Budge translated this story from the hieratic script of a papyrus roll. Since then it has received the attention of many commentators, but, nevertheless, the Atlantean implications of the narrative appear to have passed unnoticed.

"I will now speak and give a description of the things that happened to me when I was journeying to the copper mines of the King. I went down into the sea in a ship 150 Cubits in length and 40 Cubits broad, manned by 150 of the best sailors in Egypt. . . . A storm overtook us while at sea, and a wave 8

Cubits high struck the ship. I seized a plank driven towards me, and (eventually) the waves cast me up on an island.

"Here-after having rested and eaten my fill, I was preparing a burnt offering for the gods, when I heard a sound as of thunder, which I thought to have been caused by a wave of the sea, and the trees rocked and the earth quaked. The sounds were caused by a great serpent which came towards me. It was 30 Cubits in length, with a head more than 2 Cubits in size. Its body was covered with scales of pure gold and the ridges over the eyes were of pure lapis lazuli. It coiled its length up before me and said: 'Who hath brought thee hither, Oh miserable one, Who hath brought thee hither? If thou dost not immediately declare unto me who hath brought thee unto this island, I will cause thee to be burnt with fire and thou wilt become a thing which is invisible. . . . Then the serpent took me in its mouth and carried me off to the place where it was wont to rest, and it set me down, saying: 'Who hath brought thee to this island of the sea?'

"When I had told my story, the serpent said: 'Have no fear, oh little one. Verily God hath spared thy life and thou hast been brought to this isle of the blest. Verily thou shalt pass four months on this island and then a ship will come, on which thou shalt go to thy native country, and thou shalt die in thy home town.'

"The serpent continued: 'I used to live here with my brethren and my children who together numbered seventy-five. I do not make mention of a maiden brought to me by fate. And a star fell from heaven and all of them were burnt in the fire which fell with it. I was not amongst those who were burnt in the fire but I well nigh died of grief for them.' . . . The serpent smiled at me and said: 'Behold, I am the Prince of Punt, and it shall come to pass that when thou hast departed from this place, thou shalt never more see this island, for it shall vanish beneath the waves.'

"And in due course, as predicted, a ship arrived, and the serpent said: 'A safe journey, oh little one, to thy house. I beseech thee that my name be held in fair repute in thy land, for verily this is the thing which I desire of thee' . . . We arrived there at the end of two months and I entered into the presence of the king. And the king praised me and appointed me one of his bodyguard."

This legend carries with it the elements of several myths, and is linked to those of Yamilka and Gilgamish, and with certain of the Arabian Nights. The Serpent king, the Prince of Punt, may well have been an offshoot of the Egyptian Royal Family. The falling star recalls Boneff, Bellamy, and Velikovsky. The mysterious island may well be that of Calypso, mentioned by Homer some 3,000 years later. The papyrus is in the Leningrad Museum and has frequently been translated.

THE ORIGINAL ORBIT OF LUNA.

By L. C. SUGGARS.

"Is another world watching us?" asks a well known newspaper. "What are the flying saucers?" asks another, and though there have been heated controversies over the subject, people generally have not thought these things impossible. This reaction to headline-scares gives an indication as to how far the public idea has progressed on interplanetary travels. Today we think we shall (comparatively) soon be able to visit other worlds. Naturally enough if we do, we shall call in on our next door neighbour first—the moon, and the means of getting there will be by rocket.

This problem of going to the moon by rocket brings very forcibly to our minds how very nearly the Earth did **not** capture the moon. It was quite a touch-and-go affair and the close limits under which it was able to do so are not generally realised.

The moon travels round the Earth at an average speed of 1 kilometer per second (1 Km. p.s.) in an eliptical orbit, and is sometimes as near as 357,000 kilometers from us and at other times is 407,000 kilometers away. Its average distance from the Earth is 384,000 kilometers. That average speed of 1 Km. p.s. is very slow compared with our own Earth's average speed of 29.8 Km. p.s.

You will note that "average speed" is quoted; the moon at its closest approach to the Earth speeds up to 1.11 Km. p.s. and slows down to 0.95 Km. p.s. at its farthest from the Earth. In a like manner, when our Earth is nearest to the sun (in winter), it is travelling in its orbit at 30.2 Km. p.s. and slows down to 29.3 Km. p.s. at its farthest point from the sun. These two points of the Earth's orbit are called perihelion and aphelion respectively.

It is a law of planetary motion that a planet moving in an orbit nearer the sun, moves faster in that orbit than a planet that is farther out. For instance, the Earth travels round the sun in one year while Mars, which is farther from the sun than the Earth, takes 687 of our days to travel round the sun at an average orbital speed of 24.15 Km. p.s.

Now according to Hoerbiger's theory, the moon must have been captured travelling at approximately the same speed as the Earth, therefore from the above law of planetary motion the Earth must have been travelling at its slowest (at aphelion) while the planet Luna (now our Moon) must have been travelling at its fastest (at perihelion).

The Earth's slowest speed is 29.3 Km. p.s. and whilst it may have been going slightly faster due to a slightly smaller orbit at the time of Luna's capture, we can take the figure of 29.3 as being near enough. If the Moon was captured by the Earth then its orbital speed at the time of capture must have been 29.3 minus 1.11 Km. p.s., which gives a total of

28.19 Km. p.s. This figure, then, is the original speed of the planet Luna in its orbit at its perhelion.

We now know its original orbital speed, what was the original diameter of its orbit?

Of course it was not a circular orbit but an eliptical one with the sun located in one foci, but we can make an estimate of the length of at least the perihelion radii from this foci.

As already stated the moon is approximately 384,000 kilometers away. To escape entirely from the gravitational clutches of the earth it would have to go out to a distance of 795,000 kilometers. To put it in another form, if the planet Luna had only come within 795,000 Kms. of the earth it would not have been captured, therefore it must have come closer, but how much? We cannot now answer that question accurately, but we do know that when the outward centrifugal force generated by the moon in its orbit equalled the gravitational force of the earth, the moon stayed "put" in its orbit and came no nearer. It therefore found a so called stability at 384,000 Kms. after drifting in from a point inside the 795,000 Km. range. To make a guess we can say that it was 600,000 Kms. away from the earth at capture. As it was captured at the Earth's aphelion, the planet Luna must then have been 600,000 plus 153,400,000 equals 154,000,000 Kms. away from the sun, therefore the diameter of Luna's original orbit was about 154 x 106 x 2 Kms.

Naturally enough one asks could the moon escape again? Yes, if it was speeded up in its orbit from 1.11 to 1.5 Km. p.s. and this is a small increase in actual speed though expressed as a percentage it is nearly 50 per cent.

The figures quoted show how narrow was the margin of capture and how narrow is the margin of retention, proof indeed that the moon is a captured planet.

THE DUALITY OF HERCULES.

An appreciation of Mr. Sykes' Paper.

By LESLIE YOUNG.

The paper in which Mr. Sykes dealt with the theme of the "Twelve Labours of Hercules," is an important contribution towards the rationalization of the heroic legends of classical mythology. After the complexities and extravagances of the theories propounded by Muller and Cox, and the lethargic attitude of other mythologists who, being unable to favour the extreme views of the German school, have sought to resolve the personality of Hercules by regarding him as a hero who had delivered the territory of southern Greece from wild beasts, Mr. Sykes' approach is both startling and original.

The various labours, it is contended, such as the adventure of the Nemean Lion, the Lernean Hydra, the Arcadian Stag, attained their significance from the various totem emblems of the clans with which Hercules engaged in battle, and are, in fact, the campaigns of a shrewd military tactician who

gained for his house the mastery of the Peloponnesus. This is a more logical deduction, for at the time of the Grecian Hercules, a period shortly prior to the Trojan War, Greece or at least its southern half, as archaeological research has proved, was largely populated and had several cities which derived their wealth from their agricultural and more especially, cattle-breeding domains. It is extremely unlikely that wild animals such as lions existed in Greece at this period; they were known probably only by repute, and the communities were certainly not still held in subjection by these or other wild animals. Even Diodorus Siculus, the Sicilian historian, was able to recognise this fact.

It is remarkable in view of the lapse of time and of the fact that the majority of the records of the logographers who preserved these legends has perished, how clearly this Grecian hero emerges as an historical personality, which undoubtedly he was. Furthermore, there are indications that Hercules (which was significantly an adopted name, and he was in actual fact called Alcaeus, being a descendant through his father Amphitryon, of Perseus), absorbed the characteristics and attributes of another mythological prototype much earlier in time.

Amphitryon was the legitimate King of Tiryns, but having been deprived of his throne through the murder of his uncle, whose daughter Alemene he took to wife, was living in exile at Thebes when Hercules was born. It was not to the hero that the throne descended, but to his kinsman Eurystheus, apparently born a short while earlier, the son of the Perseid Sthenelos who at a still earlier period had banished his nephew, Amphitryon, from Tiryns. To explain the displacement of Hercules from his legitimate inheritance, the poets wove the story of the contention of Zeus and Hera who, it is said, outwitted the paramount god and succeeded by a stratagem in having Eurystheus rule instead of Hercules, as was intended by Zeus. There appears to be some probability that here is a hint of the struggle that had been going on prior to the birth of the hero, and still continued during Hercules' lifetime, between the religious partizans of the Sky-God, i.e., the cult brought by the invading Achaeans, and the cult favoured by the older inhabitants of Greece, that of the Mother-Goddess. The circumstance indicate that Hercules was reared in the newer cult, that of Zeus, who was the traditional patron of the Perseids, and that he appears to have cherished enmity towards the opposing religion throughout his subsequent career. It is not without significance that the first three of his battles, with the Nemean Lion, the Hydra and the Stag clans, were all under the protection of the Mother-Goddess. This is also reflected in the myth that while still a youth, he strangled two snakes that were sent by Hera to kill him.

Even this legend would seem to contain a basis of fact, for one of the forms of the Cretan Mother-Goddess was that of the image of a woman with flounced, bell-bottom kirtle with

snakes twirled round her waist and arms, who in Greece was identified with Ge the Earth-Goddess. It is not improbable that the youthful Hercules killed some snakes belonging to one of her votive shrines.

Here the youth met with his first adventure, an attack by the lion clan upon his father's herds, and also apparently those of the king of Thebes. The youth, probably with the aid of a few followers, succeeded in routing the attackers, receiving as his reward a presentation of arms and the hand of the daughter of the King of Thebes. But the later murder of his children sent him again into exile and servitude to his kinsman Eurystheus, who, probably anxious to be rid of his unwelcome relative, set him the task, with a few troops, of overcoming the Nemean clan, thinking perhaps Hercules would be defeated and killed. But Hercules was victorious, and was inspired to the greater deeds which were the subject of Mr. Sykes' lecture.

The exploits of Hercules appear to have gained lustre from the fact that he adopted the name of another Hero-god who seems to have a wide mythological diffusion among the ancient nations of the Mediterranean basin. Both Diodorus and Herodotus tell of another Hercules in Egypt, who is said to have been the son of Ammon. Diodorus ascribes to this Egyptian hero, not only that he was the mortal warrior who took part in the battle of the Gods and the Giants, but also that he saved Egypt from inundation when the Nile burst its banks and flooded a large part of the land, by stopping the flood and turning the river back to its course. These events, according to Diodorus, happened during the life-time of Osiris, at a period which both Diodorus and Herodotus give as in the region of ten thousand years prior to the Trojan War. On the other hand it has been asserted that the Egyptians, in turn, had derived the Hercules tradition from the Phoenicians, who called this figure Baal. In connection with this myth, it is interesting that among the inscriptions found at Ras Sharma in Palestine, there is one describing Baal as an athletic figure, brandishing a club and holding in his left hand a stylised thunderbolt ending in a spearhead. Like the Grecian and Egyptian Hercules, he had engaged in various adventures, notably a battle with a serpent having seven heads, who was named Lotan, and has been identified by some as the one in the Book of Revelations. As these inscriptions are of earlier date than the period when the Grecian Hercules flourished, it would not appear that the Greek manifestation could have influenced the details associated with Baal, who may possibly have even a further background from Babylonian or Sumerian sources. It is evident, at least, that the Hercules myth has wider ramifications, and a deeper significance in the traditions of the Mediterreanean than has yet been understood, and it is to the credit of Mr. Sykes that he has been able to clarify so large a contribution towards its elucidation.

ZIMBABWE—A STRANGE MYSTERY.

By E. J. SAWYER, F.R.S.A.

For many years past, scientists have tried to unravel the mystery surrounding Zimbabwe, that great group of ruins in Southern Rhodesia. Many theories have been put forward, but in the absence of any human remains or other revelant data, this enigma must remain unsolved.

There is little doubt that a Phallic form of worship was observed in the Great Temple, for the immense conical structures of stone cannot be attributed to anything else. Did the inhabitants of Zimbabwe bring this religion with them from the north? If so the people who built Zimbabwe may have been Phoenicians, or some other race, who were searching for the gold which could be had in abundance, at least in those days.

Here is a legend which can be accepted equally as well as any other that is told of Zimbabwe:—

Zimbabwe and its surrounding territory was a large colony of men who had travelled down the east coast of Africa in search for gold, of which they had discovered large quantities.

They built the Great Temple and the Acropolis on a rocky hill nearby. Their ruler was a virgin queen named Ulindi, who was assisted by a number of elder statesmen. While at the zenith of their power, the people were attacked by a mysterious disease which killed great numbers of their men, leaving the rest impotent. It was clear to the queen that, unless something happened, the race would soon be extinct. This was correct, and soon the people were faced with two alternatives: to move away, or to be obliterated. Yet there was still another, that of the wholesale suicide of the entire community.

In the Hill of the Acropolis there are a great number of caves, some of which go into the interior for quite a long distance. The queen selected one of these caves as the fatal spot. Those men who were well enough, built a platform of heavy timber at the mouth of the cave. Above this platform and supported by it, large rocks were placed so that, under certain conditions, the rocks would fall down and seal the entrance to the cave. On the day appointed, everybody entered the cave, the old and young, the sick and the healthy. When all were inside, men stacked straw and other inflammable matter around the base of the platform. At a signal given by the queen, this straw was set on fire, and before long the entire platform collapsed, causing the rocks to fall down and cover the mouth of the cave.

Though extensive search has been made for this cave every effort so far has been unsuccessful. It is believed that, if found, it would yield many tons of gold, and possibly much that would give us information regarding this mysterious race which disappeared without any trace.

AN ASTRONOMICAL QUERY.

By C. A. BURLAND.

May I beg the help in the cause of Americanist studies from your Astronomer friends? There are two problems in my field of research, where picture writing is perfectly clear to me but where I have not the astronomical knowledge necessary to give exact dates to the events described.

The first case is the inscription on Stela I at El Castillo (near Sta. Lucia Cotzumahualpa) in Western Guatemala. Here I have been able to show that the symbols on the face of the stela represent the initian days of a Venus cycle. . . . Heliacal rising after inferior conjunction, entry into a period of superior conjunction, Heliacal appearance after superior conjunction and beginning of the next short period of inferior conjunction invisibility. However on archaeological grounds I am able to state definitely that this sequence refers to a period before 1,000 A.D.; and by comparison with Maya calendar changes find it possibly refers to a Venus period in the early 7th century A.D. However I am very sceptical of my own results, and think the monument may be somewhat earlier. The problem arises from a picture above the inscription. In this is represented the open jaws of the Earth. Within them appears the planet Venus in the form of a deity with the Venus bird as his headdress . . . a kind of owl, shown here with symbols for "black" on its wings. This owl is shown against a rayed background normally symbolic of the Sun. I have little doubt that the ancient artist was portraying in symbol an observation of the transit of Venus. He also shows climbing towards the jaws of the Earth a god whom I take to be the Fire God, who was associated with the star Aldebaran.

Can the astronomers give me a date when at approximately 14½° N and 91½° W a transit of Venus could have been observed with the sun near the horizon and also Aldebaran.

(*The second problem will be given in the next issue.*—Ed).

LITERATURE.

Secret Cities of Old South America.

By H. T. Wilkins, London, 1950. Post Free £1. 1s. 9d.

In this interesting work of some 470 pages, Mr. Wilkins develops the ideas of his earlier work "Mysteries of Ancient South America," on the relationship of Atlantis with the vast hinterlands of the Amazon Basin, and on the racial origins of the South American Tribes. There are fascinating chapters on such adverse matters as the Ora Linda Boek, the Amazons in the Old World and the New, the adventures of Colonel Fawcett, and even Noah's Ark.

The fact that the writer of this review does not hold with many of the theories put forward by Mr. Wilkins is immaterial; such a wealth of detail and ideas should be read by all who are interested in Atlantis or the legends of the past.

Worlds in Collision.

By I. Velikovsky. London, 1950. Post Free, 15s. 9d.

This book has created more controversy than any similar one for many years. It is, perhaps, permissible to speculate whether the initial storm of adverse criticism, which has done much harm to organisations investigating the problem from different angles, may not in the long run prove to have been a helpful astringent.

The main difficulty is that Velikovsky, in his endeavour to fit his ideas into the time framework of the Old Testament, not only has to overlook far too much, but also has to postulate a succession of astronomical events which seem to be outside the range of possibility as now visualised. On the other hand he has produced a wide range of source material, much of which is quite new to the writer of this review, and it is considered that whether or not, one agrees with the views which are expressed, the book should be purchased as a source book.

The moral to be drawn from Velikovsky, and also from Wilkins, is that no matter how much you may disagree with the conclusions expressed by an author, it is never wise to neglect the sources on which these conclusions are based, as much profit may be drawn from their careful study.

The Ley Hunters Manual.

By Alfred Watkins. Reissued London, 1950. Price 4s. 3d. post free.

The late Alfred Watkins, when he published this book in 1927, managed to pack 120 photographs and site diagrams into its 90 pages, together with a wealth of information on the best methods to be used in tracing alignments and identifying mark stones. The illustrations of typical alignment networks on such places as Salisbury Plain have yet to be surpassed. The work has been out of print for many years, but recently a small supply of copies was discovered tucked away in a cupboard, where they had remained since the death of their author. These have now been made available to the public, but once the stock is exhausted there will never be an opportunity of obtaining a copy, for the original diagrams and photographs have long since been destroyed, and it will not be possible to repeat them.

Blavatsky and Hoerbiger.

By W. Angus Jones, M.B.E., London, 1950. Price, 2s. 9d. Post Free.

The author has made a serious effort to reconcile the theories of the origin of the cosmos put forward by H. P. Blavatsky, over sixty years ago, and those postulated by Hans Hoerbiger in 1913. In the present fluid state of scientific knowledge, torn between officially sponsored bombast and private uncertainty, this booklet broadens the basis of certainty and shows how these two theories, so different in origin and conception, not only fit in closely together but even clarify points of uncertainty in each other.

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